CLAIMS

1.   A method of detecting local space-time details of a video signal representing a plurality of images, the method comprising, for each image, the steps of:

A) dividing the image into one or more blocks of pixels,

B) calculating at least one space-time feature for at least one pixel within each of said one or more blocks,

C) calculating for each of the one or more blocks at least one statistical parameter for each of the at least one space-time features calculated within the block, and

D) detecting blocks wherein the at least one statistical parameter exceeds a predetermined level.

2.   A method according to Claim 1, wherein the at least one space-time feature is selected from a group consisting of: visual normal flow magnitude, visual normal flow direction.

3.   A method according to Claim 1, wherein the at least one space-time feature is selected from a group consisting of: visual normal acceleration magnitude, and visual normal acceleration direction.

4.   A method according to Claim 1, wherein the at least one statistical parameter of step D) is selected from a group consisting of: variance, average, and at least one parameter of a probability function.

5.   A method according to Claim 1, wherein the one or more blocks of pixels are one or more non-overlapping square blocks, and wherein a size of the one or more square blocks is selected from a group consisting of: 2x2 pixels, 4x4 pixels, 6x6 pixels, 8x8 pixels, 12x12 pixels, and 16x16 pixels.

6.   A method according to Claim 1, further comprising the step of pre-processing the image prior to applying step A), so as to reduce noise in the image.

7.   A method according to Claim 6, wherein the step of pre-processing comprises convolving the image with a low-pass filter.

8.   A method according to Claim 1, further comprising an intermediate step between step C) and D), wherein the intermediate step comprises calculating at least one inter-block statistical parameter involving at least one of the statistical parameter calculated for each block.

9.   A method according to claim 8, wherein the at least one inter-block statistical parameter is calculated using a 2-D Markovian non-causal neighbourhood structure.

10.   A method according to Claim 1, further comprising the step of determining a pattern of temporal evolution for each of the at least one statistical parameter calculated in step C).

11.   A method according to Claim 1, further comprising the step of indexing at least part of an image comprising one or more blocks detected in step D).

12.   A method according to Claim 1, further comprising the steps of calculating horizontal and vertical histograms of the at least one space-time feature calculated in step C).

13.   A method according to Claim 1, further comprising the step of increasing data rate allocation to the one or more blocks detected in step D).

14.   A method according to Claim 1, further comprising the step of inserting an image in a de-interlacing system.

15.   A system for detecting local space-time details of a video signal representing a plurality of images, the system comprising:

- means for dividing an image into one or more blocks of pixels,

- space-time feature calculating means for calculating at least one space-time feature for at least one pixel within each of the one or more blocks,

- statistical parameter calculating means for calculating for each of the one or more blocks at least one statistical parameter for each of the at least one space-time features computed within the one or more blocks, and

- detecting means for detecting one or more blocks wherein the at least one statistical parameter exceeds a predetermined level.

16.   A device comprising a system according to Claim 15.

17.   A signal processor system programmed to operate according to the method of Claim 1.

18.   A de-interlacing system for a television (TV) apparatus, the de-interlacing system operating according to the method of Claim 1.

19.   A video signal encoder for encoding a video signal representing a plurality of images, the video signal encoder comprising:

- means for dividing an image into one or more blocks of pixels,

- space-time feature calculating means for calculating at least one space-time feature for at least one pixel within each of the one or more blocks,

- statistical parameter calculating means for calculating for each of the one or more blocks at least one statistical parameter for each of the at least one space-time features computed within the one or more blocks,

- means for allocating data to the one or more blocks according to a quantisation scale, and

- means for adjusting the quantisation scale for the one or more blocks in accordance with the at least one statistical parameter.

20.   A video signal representing a plurality of images, the video signal comprising information regarding image segments exhibiting space-time details suitable for use with the method of Claim 1.

21.   A video storage medium comprising video signal data according to Claim 20.

22.   A computer useable medium having a computer readable program code embodied therein, the computer readable program code comprising:

- means for causing a computer to read a video signal representing a plurality of images,

- means for causing the computer to divide a read image into one or more blocks of pixels,

- means for causing the computer to calculate at least one space-time feature for at least one pixel within each block,

- means for causing the computer to calculate for each of the blocks at least one statistical parameter for each of the at least one space-time features calculated within the one or more blocks, and

- means for causing the computer to detect blocks wherein the at least one statistical parameter exceeds a predetermined level.

23.   A video signal representing a plurality of images, the video signal being compressed according to a video compression standard, such as MPEG or H.26x, comprising a specified individual allocation of data to blocks of each image, wherein a data rate allocated to one or more selected blocks of images exhibiting space-time details is increased compared to the specified allocation of data to the one or more selected blocks.

24.   A method of processing a video signal, wherein the method of processing comprises the method of Claim 1.

25.   An integrated circuit comprising means for processing a video signal according to the method of Claim 1.

26.   A program storage device readable by a machine and encoding a program of instructions for executing the method of Claim 1.